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Functions - more skills

I. substituting expressions as input values

a. $f(x) = 2x - 3$ $\quad x$ = input

Find $f(5) = 2(5) - 3 = 7$

$f(a) = 2a - 3$

$f(\underbrace{b+3}_{\text{input}}) = 2(b+3) - 3$

$= 2b + 6 - 3$

$= 2b + 3$

b. $f(x) = \frac{1}{4+x}$

Find: $f(-3) = \frac{1}{4+(-3)} = \frac{1}{1} = 1$

$f(-4) = \frac{1}{4+(-4)} = \frac{1}{0} = 0$

$f(x-4) = \frac{1}{4+(x-4)} = \frac{1}{x}$

$f(x^2) = \frac{1}{4+x^2}$

II. Writing function rules

Write an equation for the following functions

A.

x	y
36	6
25	5
1	1
0	0

$y = \sqrt{x}$

$f(x) = \sqrt{x}$

$f: x \mapsto \sqrt{x}$

B.

x	y
-2	7
-1	5
0	3
1	1
2	-1
3	-3

y-int

$y = mx + b$

C. $f(x)$, if $f(x)$ is linear and $f(3) = 10$ and $f(-1) = -2$

$f(3) = 10 \quad (3, 10)$ (x, y)

$f(-1) = -2 \quad (-1, -2)$

Slope: $= \frac{10 - (-2)}{3 - (-1)}$

$= \frac{12}{4} = 3 \quad m = 3$

$y = mx + b$

plug in $(3, 10)$: $y = 3x + b$

$10 = 3(3) + b$

$10 = 9 + b$

$b = 1$